Characteristics of coconut veneer and veneer products

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Veneer Qualities

Knowledge and data collected from veneer assessments

- Colour
- **Roughness**
- Splits
- Brittleness
- **Collapse**
- Decay
- Compression
- Wane
- Insects, etc
Veneer Qualities

Knowledge and data collected from veneer assessments

- Superior Quality – 15%
- High Quality – 50% (35%)
- Standard Grade – 84% (34%)
Knowledge and data collected from veneer assessments

Advanced veneer and other product from coconut wood
Veneer Qualities

Knowledge and data collected from veneer assessments

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Stage 1 - Architectural Products:
• Plywood, appearance veneer overlaid on a substrate, engineered flooring, multi-laminar products

Stage 2 - Structural Products:
• Plywood and laminated veneer lumber (LVL)
Products

Plywood

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Products

*Laminated veneer lumber*

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Products

*Overlay products*

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Products

*Engineered flooring*

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Products

Multilaminar

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Products

Multilaminar

Advanced veneer and other product from coconut wood
Products

Multilaminar

Advanced veneer and other product from coconut wood
Products

**Multilaminar**

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Products

**Multilaminar**

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Structural Products

Structural product manufacture and testing

• Larger scale product manufacture
• Focus on construction strategies
• Manufacturing protocols
• Mechanical properties
4 Density batches

- Low (<450kg/m³)
- Medium (450-600)
- Med-high (600-750)
- High (>750kg/m³)

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4 Construction strategies

- A – low density
- B – medium density
- C – Med-high density
- D – High density faces with medium core

Face veneers - Visual grade 2
Core veneers – Visual grade 3
Structural Products

Manufacturing

• Conventional equip
• Standard adhesive systems with adjusted mix and manufacturing protocols

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Structural Products

Mechanical Properties

• Modulus of Elasticity
• Modulus of Rupture
• Panel Shear
• Hardness
• Bond Quality

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Modulus of Elasticity (plywood)
Structural Products

Panel Shear (plywood)

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## Assigned F-grades (plywood)

<table>
<thead>
<tr>
<th>Construction strategy</th>
<th>Bending MOE (E)</th>
<th>Bending MOR ($f'_b$)</th>
<th>Panel shear ($f'_s$)</th>
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Structural Products

Hardness (plywood)
Bond Quality (plywood)
• 93% passed rigorous A-bond criteria
• Failed bonds probably batch related
Product Summary

- A range of appearance and structural product opportunities exist for coconut veneer
- Coconut veneer has some unique qualities that enable potentially high value niche markets to be pursued
- Common adhesive systems can be adapted
- Construction strategies can make efficient use of variable qualities
Questions